



IN THE U.S. PATENT AND TRADEMARK OFFICE

APPLICANT : WATANABE ET AL.

SERIAL NO.: 10/765,088

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FOR: GROUP-. 3711

EXAMINER: GORDON, RAEANN

D E C L A R A T I O N

Honorable Commissioner of Patents and Trademarks Washington, D.C. 20231

Sir,

I, Hideo Watanabe, resident of c/o Bridgestone Sports Co., Ltd., M&D center Chichibu, 20, Ohnohara, Chichibu-shi, Saitama--ken, Japan do hereby declare that:

1. I was graduated from Master Course of Mechanical Engineering, Faculty of Science and Technology of Tokyo University of Science, Japan in March 1990. From April 1990 to 1993, I was employed by Bridgestone Corporation, and in April 1993, I was transferred from Bridgestone Corporation to Bridgestone Sports Co., Ltd., the assignee of the above-identified application. I have been engaged in research and development relating to sporting goods such as golf balls in the laboratory of the Company.

2. I am an inventor of the above-identified application and

I am familiar with the subject matter disclosed in said application.

3. In order to show the feature of the present invention, I conducted the following experiment.

[Experiment]

Example 1 described in US 2001/0016522 publication (Watanabe reference) is compared to the golf ball of the present invention in accordance with the test described in Examples of the present specification, which are as follows.

First, the core of Watanabe reference (E1) were produced by molding rubber composition whose formulation is shown in Table 1 and vulcanizing at 155°C for 15 minutes. Over the core, intermediate layer material and cover material whose formulations are shown in Table 2 were injection molded in sequence.

The test results of the golf balls are shown in Table 3.

Table 1

Core composition (pbw)	Example
	1
Polybutadiene	100
Zinc acrylate	25
Peroxide	1.2
Antioxidant	0.2
Barium Sulfate	25.2
Zinc oxide	5
Zinc salt of pentachlorothiophenol	0.2

Polybutadiene: trade name BR01 by JSR Corp.

Peroxide: mixture of Percumyl D by NOF Corp and Perhexa 3M-40 by NOF Corp at ration of 1:1.

Table 2

Core composition (pbw)	No.1	No.2
Himilan 1706	50	25
Himilan 1605	50	25
Hytrel 3078		50
Titanium Dioxide	5.6	0
Specific Gravity	0.985	1.020
Resin Hardness (Shore D)	63	51

Himilan 1706, 1605: ionomer resins by DuPont-Mitsui Polychemicals Co.,  
Ltd.

Hytrel 3078: polyester elastomer by Dupont-Toray Co., Ltd.

Table 3

			Example 1
Core	Outer diameter (mm)		35.66
	Deflection amount (mm)		4.20
	Initial velocity (m/s)		77.0
	Surface hardness (Shore D)		44
Intermediate layer	Material		No.2
	Sheet hardness (Shore D)		51
	Thickness (mm)		1.42
Sphere (core enclosed with intermediate layer)	Outer diameter (mm)		38.50
	Deflection amount (mm)		4.01
	Initial velocity (m/s)		76.7
Cover	Material		No.1
	Sheet hardness (Shore D)		63
	Thickness (mm)		2.10
Ball	Outer diameter (mm)		45.21
	Weight (g)		42.70
	Deflection amount (mm)		3.03
	Initial velocity (m/s)		77.1
Cover hardness - intermediate layer hardness (Shore D)			12
Sphere initial velocity - core initial velocity (m/s)			-0.3
Sphere deflection amount/ core deflection amount			0.96
Cover thickness + intermediate layer thickness (mm)			3.42
Ball deflection amount/sphere deflection amount			0.76
Flight performance	W#1 HS40 m/s	Carry (m)	185.8
		Total (m)	196.9
		Spin (rpm)	2989
		Flight distance	Mediocre- Poor
Feel with W#1			Good
Feel with putter			Good
Crack durability			Good
Scuff resistance			Good

### Flight performance

Using a hitting robot equipped with a driver (W#1) club, the golf ball was hit at a head speed (HS) of 40 m/s. The carry, total distance and spin rate were measured. The W#1 club used was TourStage X500 (loft 10°) by Bridgestone Sports Co., Ltd. The flight distance is rated "Excellent" when the total distance is greater than or equal to 198.0 m, "Passable" when the total distance is from 197 m to less than 198.0 m, "Mediocre" when the total distance is from 196.0 m to less than 197.0 m, and "Poor" when the total distance is less than 196.0 m.

### Feel with W#1 and putter

A sensory test used a panel of ten amateur golfers with an ability to swing W#1 club at a head speed of 35 to 40 m/s. The ball was rated "Good" when seven or more golfers felt good and "Poor" when only four or less golfers felt good.

### Crack durability

Using a hitting robot equipped with a driver (W#1) club, the golf ball was repetitively hit at a head speed of 40 m/s. The number of strikes when the ball surface started crazing was counted. For each ball, three samples were tested and an average number was computed. It was converted to an index provided that the number of strikes on the ball of Example 2 until crazing was 100. The ball was rated "Good" when the index is equal to or greater than 95, "Mediocre" when the index is from 80 to less than 95, and "Poor" when the index is less than 80.

### Scuff resistance

Using a hitting robot equipped with a non-plated pitching sandwedge, the golf ball was once hit at a head speed of 40 m/s. The ball surface was visually examined. The ball was rated "Good" when the ball could be used again and "Poor" when the ball was no longer used.

### Test results

As seen from the above-described table result of the golf ball of Example 1 of Watanabe reference (US 2001/0016522 publication) in which the difference between the sphere initial velocity and the core initial velocity is -0.3 (m/s), which is not satisfied with the element of the present invention at all. And, as a result, the golf ball of Example

1 of Watanabe is inferior to the golf ball of present invention sufficiently (Please be compared with Examples 1-3 of the present specification, especially, fling performance of total (m)).